

ABSTRACT OF THE DISCLOSURE

The present invention provides a diffraction grating element that allows the temperature control mechanism to be dispensed with or simplified. The
5 diffraction grating element of the present invention comprises a transparent plate having a first surface and a second surface that are substantially parallel with one another; and a diffraction grating which is formed on a first surface side with respect to the
10 second surface and is substantially parallel with the first surface. At any temperature within a temperature range -20°C to $+80^{\circ}\text{C}$, the sum of the rate of change in the period per unit length of the diffraction grating with respect to a temperature change, and the
15 temperature coefficient of the refractive index of a medium that surrounds the diffraction grating element is 0.